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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/840,577	04/23/2001	Oliver Heid	P01,0139	3801

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SCHIFF HARDIN & WAITE
6600 SEARS TOWER
233 S WACKER DR
CHICAGO, IL 60606-6473

EXAMINER

VARGAS, DIXOMARA

ART UNIT	PAPER NUMBER
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2862

DATE MAILED: 03/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/840,577

Applicant(s)

HEID, OLIVER

Examiner

Dixomara Vargas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 30 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: The recitation “electrical conduct or in a “ seems to be a typographical error. The examiner suggests to change to “electrical conductor in a “. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 3-5; 14 and 15 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification of the application fails to disclose or fairly suggest the information that states that the electrical conductor has two sections wherein the first and second sections at least partially overlap each other or does not overlap.
4. Claims 3-5; 14 and 15 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification of the application fails to disclose or

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fairly suggest the information that states that the electrical conductor has two sections wherein the first and second sections at least partially overlap each other or does not overlap.

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3-5, 14 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 3 recites the limitation "said section of said electrical conductor is a first section" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

4. With respect to claims 14 and 15, the term "overlap" is unclear to one of ordinary skill in the art since it is not stated in the applicant's disclosure if the overlapping requirement is meant to mean one section surrounding a second section or both sections being in contact with each other. Clarification is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-10 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Furukawa (US 5,489,848).

With respect to claim 1, Furukawa discloses an electrical coil suitable for use as a gradient coil for a magnetic resonance apparatus, comprising: at least one electrical conductor (Figure 7, #34); a carrier structure for said electrical conductor which fixes said electrical conductor in a predetermined arrangement (the vacuum vessel that retains the gradient system of Figure 2, #22; Column 4, lines 23-33), a cooling device component disposed in thermal communication with said electrical conductor for cooling said electrical conductor (Figure 2, #23; Column 4, lines 34-37); and a heat insulator (Figure 3, #41; Figure 5, #38b) disposed between at least one section of said conductor and said carrier structure (Figure 3).

7. With respect to claim 2, Furukawa discloses at least one section of said conductor is a hollow cylinder adapted for guiding a flowing cooling medium therein (Figures 3 and 5).

8. With respect to claim 3, Furukawa discloses said cooling device component cools at least one section of said conductor (Figures 3 and 5).

9. With respect to claim 4, Furukawa discloses at least one section of said conductor proceeds in an edge region of a spatial extent of said coil (Figures 3 and 5).

10. With respect to claim 5, Furukawa discloses said coil has a spatial extent forming a hollow cylinder, and wherein said at least one section of said conductor proceeds in a region of a front side of said hollow cylinder (Figures 3 and 5).

11. With respect to claim 6, Furukawa discloses said heat insulator surrounds said conductor (Figures 3 and 5).

12. With respect to claims 7 and 8, Furukawa implicitly discloses said heat insulator has a lower thermal conductivity than said carrier structure since the insulator may be composed of plastic (Column 3, lines 64-66) and the carrier may be composed of resin (Column 4, lines 58-

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61) which in consequence can be concluded that the insulator materials as stated, have a lower thermal conductivity than said carrier structure.

13. With respect to claim 9, Furukawa discloses said carrier structure comprises a resin casting (Column 4, lines 58-61).

14. With respect to claim 10, Furukawa discloses said carrier structure includes elements for reducing non-homogeneity of a magnetic field in which said carrier structure and said conductor are disposed (Abstract).

15. With respect to claim 15, Furukawa discloses said first section (upper conductor section #34) and said second section (lower conductor section #34) do not overlap each other (Figure 8; Column 5, lines 51-59).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa (US 5,489,848).

With respect to claims 11, 12 and 13, Furukawa discloses the claimed invention except for said heat insulator comprises fibrous material, or high-resistance foam material, or a material selected from the group consisting of glass, ceramic, mineral materials and polymer materials.

It would have been obvious to one of ordinary skill in the art at the time the invention was made

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to modify Furukawa for the purpose of improving the system by avoiding eddy currents or other inhomogeneities caused by using a more suitable material for the heat insulator.

18. With respect to claim 14, Furukawa discloses the claimed invention except for said first section and second section at least partially overlap each other. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Furukawa for the purpose of being able to produce a linear gradient in as large a useful volume as possible.

Response to Arguments

19. In response to the arguments filed on January 30, 2003, the arguments were found persuasive. Applicant argues that the prior art vacuum vessel that retains the gradient system does not correspond to the carrier structure, which fixed electrical conductor in a particular arrangement.

20. The examiner disagrees since the vacuum vessel that retains the gradient system fix the conductor in a particular arrangement as seen on Figure 7, the conductor #34 has a particular arrangement (cylindrical) and is fixed inside the vacuum which is in conclusion the carrier structure. If it is intended that the conductor have a non-cylindrical shape and instead the shape is a specific shape different than the prior art, applicant is reminded that the claim does not recited said structural limitation or define the carrier structure if different than a vacuum vessel. Applicant is also reminded that the examiner is entitled to give the claim the broadest interpretation possible.

21. Applicant argues that the prior art does not teach or suggests that the heat insulator is disposed between the electrical conductor and the carrier structure.

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22. The examiner disagrees in view of the previous rejection wherein it was stated that Furukawa discloses said limitation in Figures 3 and 5. For example, Figure 3 shows the gradient #37 being surrounded by the insulator layer of resin #41 and inside the vacuum vessel.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

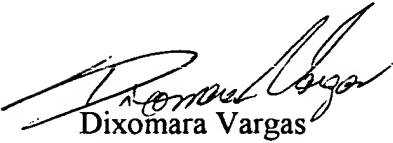
24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited at the PTO 892 discloses different arrangements for gradient systems with overlapping conductors.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (703) 305-5705. The examiner can normally be reached on 8:00 am. to 4:30 pm..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (703) 305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0956.


Dixomara Vargas
March 13, 2003


EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800